

USSR

UDC 621.396.6.019.34

ABRAMOV, YU. S., CHIRKOV, V. G.

"Determination of the Reliability of Functional Modules of Radio Equipment by Simulation on a Digital Computer"

Sb. nauch. soobshch. Radiotekhn. fak. Dagestan. un-t (Collected Scientific Reports. Radio Engineering Department. Dagestan University), 1970, No 1, pp 3-17 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10V273)

Translation: The application of the method of statistical tests for estimating the reliability of radio equipment on a digital computer is demonstrated in the example of a device with scanning. The reliability is determined by gradual and sudden failures of the amplitude calibrator, the time calibrator and the sweep oscillator of the S1-16 oscillograph. The reliability characteristics obtained compare with the results of natural tests of the investigated units.

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UDC 681.325.65.525

CHIRKOV, V. I., and FODGAYSKIY, K. A.; Donets Scientific Research, Planning, and Design Institute for the Automation of Mining Machinery

"Pneumatic Pulse Selector"

USSR Authors' Certificate No 337775, Cl. G 06d 3/00, filed 17 Aug 70, published 5 May 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 15, 5 May 72, p 177)

Abstract: The device contains a unit for converting the number of pulses into pressure, using a three-membrane relay whose nozzles are connected to a variable capacitance. One of the end chambers is connected to the feed channel, the other to a capacitor of constant volume, and the middle chamber to the input pulsing channel. There is a second three-membrane relay, a pneumatic valve, and an "OR" element. The device is unique in that, in order to increase reliability, the input pulsing channel is connected to the end chamber of the second relay, whose corresponding nozzle is connected to the output channel of the selector and the control chamber of the pneumatic valve. The latter's output is connected to the atmosphere, the second nozzle of this

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CHIRKOV, V. I., and PODGAYSKIY, K. A., USSR Authors' Certificate No 337775

same relay, and the input of the "OR" element, whose output is connected to the control chamber of this same relay, the second control chamber of which as well as the second chamber of the pneumatic valve is connected to the feed channel. The second input of the "OR" element, connected to the constant-volume capacitor is connected to the input of the pneumatic valve.

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UDC 681.325.65:525

CHIRKOV, V. I., PODGAYSKIY, K. A.

"Pneumatic Trigger with Counting Input"

USSR Author's Certificate No 295118, Filed 13/10/69, Published 24/03/71,
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychis-
litel'naya Tekhnika, No 11, 1971, Abstract No 11 A84 P).

Translation: A pneumatic trigger with a counting input is suggested, con-
taining 2 OR elements and two 3-membrane relays with springs, the first of
which is connected in the switching mode and the input of which is connected
to the input of the trigger. In order to simplify the device and increase
its reliability, the output of the first relay, connected to a chamber con-
taining a spring, is connected to the blocking chamber of this relay and
to the input of the first OR element. The output of the latter is connected
to the control chamber of the second relay, the output of which is connected
to the output bus of the trigger and to the inputs of both OR elements. The
output of the second OR element is connected to the control chamber of the
first relay, the second output of which is connected to the input of the
second OR element and to the blocking chamber of the second relay. 1 Figure.

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1/2 015 UNCLASSIFIED
TITLE--EXCITATION OF XENON BY ACTIVE NITROGEN -U- PROCESSING DATE--16OCT70
AUTHOR-(02)-CHIRKOV, V.N., YAKOVLEVA, A.V.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPEKTROSK. 1970, 28(3), 441-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--XENON, NITROGEN, PULSE EXITATION, SPARK DISCHARGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0388 STEP NO--UR/0051/70/028/003/0441/0443
CIRC ACCESSION NO--AP0118057
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF EXCITATION OF XE BY COLLISION WITH N HAS BEEN STUDIED. PULSED DISCHARGE WAS USED FOR EXCITING N, XE, AND N SUB2 XE MIXTS. AT DIFFERENT PARTIAL PRESSURES. ACTIVE N IS CAPABLE OF EXCITING SOME XE LINES AND ENHANCES THEIR INTENSITY.

UNCLASSIFIED

USSR

UDC: 539.3:534.1

KOMAR, N. M., CHIRKOV, V. P.

"Experimental Investigation of Errors in Measurement of Random Vibrations in Plates"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 101, pp 95-99 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9V239)

Translation: The paper compares the results of a theoretical and experimental study of errors of vibration measurement caused by the influence of the pickup. The pickup was located in the center of a circular plate clamped around the edge and subjected to kinematic random action. The external effect was considered time-stationary. The solution was sought as an expansion in normal modes of a circular massless plate with subsequent application of the spectral method. The error in vibration measurements was evaluated by a function which was the ratio of the difference between the spectral densities of accelerations of flexure of the plate in the center for different pickup masses to the spectral density for one of the masses. The experimental research was done on a Duralumin plate 2.5 mm thick with a radius of 74 mm. An IS 318-1 accelerometer was used together

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KOMAR, N. M., CHIRKOV, V. P., Tr. Mosk. energ. in-ta, 1972, vyp. 101, pp 95-99

with additional masses. Excitation was done on an electrodynamic stand using a noise generator. The method of processing the results of measurements is described. Satisfactory agreement is noted between the theoretical and experimental results. Yu. N. Novichkov.

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UDC 669.715.017.3:548.5:621.785.78

CHIRKOV, Ye. V.

"Aging of the M40 Alloy"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 63-72, resume

Translation: Investigation results of strength, plasticity, electroconductivity, and fine microstructure are related to kinetics of the decomposition of the supersaturated solid solution of the M40 aluminum alloy at 20°C (for 4-7000 hrs), 175 and 200°C (for 1-3000 hrs). An explanation is given of processes arising in this case which depend on the nature of the alloy. Six figures, two tables, two bibliographic references.

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USSR

UDC 541.132

BURSHENIN, R. KH., DRIBINSKIY, A. V., TARASEVICH, K. R.,
CHIZADZHEV, Yu. A., CHIRKOV, Yu. G., Institute of Electro-
chemistry, Academy of Sciences USSR, Moscow

"Mechanism of Current Generation in Hydrophobic Gas-diffusion
Electrodes. I"

Moscow, Elektrokhimiya, Vol 7, No 12, Dec 71, pp 1826-1830

Abstract: In spite of the wide utilization of hydrophobic gas-diffusion electrodes, the mechanism of their action has been poorly studied. This study was aimed at theoretical analysis of the mechanism of current generation in such electrodes and comparison with experimental results. The active layer of a hydrophobic electrode may be approximated by a model consisting of a gas filled cylinder, its walls a mixture of fluoroplast and a catalyst wetted with the electrolyte. With $\varphi > 0.97$ the entire surface of porous electrode generates current by an intrakinetic regimen. The electrochemical activity of hydrophobic electrodes calculated from derived equation and the one obtained experimentally for the range $\varphi = 1.07 \rightarrow 0.9v$ were very close. The

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BURSHTEN, R. KH., et al, Elektrokhimiya, Vol 7, No 12, Dec 71,
pp 1826-1830

electrochemical activity of these electrodes is in direct linear relationship to the layer thickness at low polarizations. It has been determined that when $\bar{\eta} < 1-1.5$, the current generation is controlled by the kinetic regimen and when $\bar{\eta} > 8$ --by the intra-diffusional regimen.

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Electrochemistry

USSR

UDC 541.136

CHIZMADZHEV, YU. A., MARKIN, V. S., TARASEVICH, M. R.,
CHIRKOV, YU. G., Academy of Sciences USSR, Institute of
Electrochemistry

Moscow, Makrokinetika Protssessov v Poristyykh Sredakh (Macrokinetics
of Processes in Porous Media), "Nauka," 1971, 364 pp

Translation of Annotation: The behavior of liquid and gas in porous media is of interest in connection with a variety of problems pertaining to underground hydro- and gas dynamics, mercury porometry, and industrial chemistry. Of special urgency are the investigations of the processes in porous catalysts, where chemical or electrochemical reactions take place against the background of hydrodynamic phenomena. Fuel cells, which are highly promising and are now being intensely developed, making it possible to directly convert chemical energy into electric energy, can serve as an example of such a system.

This book is devoted to the study of the mechanism of current generation in electrochemical generators. It expounds in detail the theory of capillary phenomena in porous media, the theory of
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CHIZMADZHEV, YU. A., et al, Makrokinetika Protssessov v Poristykh Sredakh, "Neuka," 1971, 364 pp

hydrodynamic mixing, etc., as well as the basic principles of the action of porous gas electrodes of fuel cells.

The book is intended for physicists, physical chemists, electrical chemists, and engineers interested in the phenomena occurring in porous media. It is of special interest to specialists working in the field of direct conversion of chemical energy into electric energy. This book can be useful to students of upper courses and to graduate students of the appropriate specialties.

Tables: 1. Illustrations: 261. Bibliography: 491 entries.

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CHARACTERISTICS OF MASS AVALANCHES FORMATION IN UZBEKISTAN
MOUNTAINS DURING THE WINTER OF 1968-1969 -U-
AUTHOR--(02)-KANAYEV, L.A., CHIRKOVA, A.A.
COUNTRY OF INFO--USSR
SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 6, PP 86-91
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--MOUNTAIN, LANDSLIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1779 STEP NO--UR/0050/70/000/006/0086/0091
CIRC ACCESSION NO--AP0125395
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRELIMINARY RESULTS OF LAND AND AEROVISUAL SURVEYS OF AVALANCHES DURING THE WINTER OF 1968-1969 ARE GIVEN, AND REASONS THAT CAUSED UNPRECEDENTED AVALANCHE FORMATION IN THE MOUNTAIN REGIONS OF UZBEKISTAN ARE BRIEFLY STATED IN THE ARTICLE.

FACILITY: UPRAVLENIYE GIDROMETSLUZHBY UZBEKSKOY SSSR.

UNCLASSIFIED

Acc. Nr: APC054299

Ref. Code: UR 9115

PRIMARY SOURCE: Ortopediya, Travmatologiya i Protezirovaniye,
1970, Nr 3, pp 26-30

SOME ROENTGENOGRAPHIC AND MORPHOLOGICAL DATA ON BONE TISSUE
REGENERATION IN DISTRACTION EPIPHYSEOLYSIS IN EXPERIMENT

G. A. Ilizarov, L. M. Soybelman and A. M. Chirkova

A. roentgenographic and morphological study of bone tissue regeneration in distraction epiphyseolysis created with aid of G. A. Ilizarov's apparatus has been carried out in experiments on 51 puppies. The regeneration has been studied during the distraction period, period of fixation of bone ends with the apparatus after termination of distraction, and at various periods following withdrawal of the apparatus. The follow-up studies ranged from 1 to 420 days. The study revealed that toward the end of the distraction period, the diaphysis measuring 10-20 mm in height was substituted by bony regenerate with preservation in its central sections of fibrous tissue zone of various width undergoing ossification. After termination of distraction, during fixation of bone ends with the apparatus, and after withdrawal of apparatus, a gradual reconstruction of regenerate took place which within 4-6 months from the beginning of experiment acquired the structure of the metaphysary bone section. These experimental findings confirm the possibility of bloodless elongation of the long tubular bones by the method of distraction epiphyseolysis.

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Reliability

USSR

CHIRKOVA, L. A.

UDC 621.396.6.019.3

"Graphoanalytical Method of Optimizing the Tolerances of Radio Electronic Equipment"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. apparatury. No 2 (Methods of Mathematical and Physical Simulation and Optimization of the Parameters of Radio Electronic Equipment. No 2 -- collection of works), Moscow, 1972, pp 30-33 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V318)

Translation: The graphoanalytical method of optimizing a device made up of functional assemblies with discrete tolerances on the parameters with respect to the product of the reliability and cost criteria is discussed. A calculation example with a cost limitation is presented. There are 2 illustrations.

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Pharmacology and Toxicology

USSR

UDC 616.281-08-039.73

CHIRKOVA, I. P., Scientific Research Institute of Otolaryngology and Chair
of Children's Otolaryngology

"Peculiarities of the Effect of Some Central Cholinolytics on Postrotational
Nystagmus and Some Vestibular Autonomic Reactions"

Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 5, Sep/Oct 71,
pp 25-30

Abstract: A study was conducted of the effect of therapeutic doses of
several central cholinolytics on the extent of changes in postrotational
nystagmus, respiration, and cardiac activity produced by the "stop stimulus."
Scopolamine, spasmolytin, tropacine, and artane were injected into rabbits.
Postrotational nystagmus was evaluated by means of electronystagmography; the
state of vestibular-autonomic reactions was calculated by the difference in
the number of breaths and cardiac contractions in 10-second intervals before
and after the "stop stimulus." Mono- and bipolar electrocorticograms were
recorded. Test results revealed that all of the preparations reduce both
postrotational nystagmus and the respiration reaction produced by the "stop
stimulus" and the duration of the reaction; tropacin and artane are most

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USSR

CHIRKOVA, L. P., Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 5,
Sep/Oct 71, pp 25-30

effective. With a marked depression of the vestibular somatic reflex, a decrease of vestibular-autonomic reactions was also observed, though to a lesser degree.

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USSR

FOMENKOV, V. N., STREKALOVA, E. Ye., KATOSOVA, L. D., CHIRKOVA, Ye. M.,
SAL'NIKOVA, L. S., SILANT'YEVA, I. V., YEFIMENKO, L. P., KULAKOV, A. Ye.

"Experimental Data on Adaptation and Its Limits in the Action of Poisons
Having a Mutagenic and Embryotropic Action"

Sb. Farmakol, Khimioterapevt. sredstva. Toksikol. Probl. toksikol.
(Pharmacology of Chemically Therapeutic Substances. Toxicology. Problems
in Toxicology--Collected Works), T. 5 (Itogi nauki i tekhn. VINITI AN
SSSR - Results in Science and Technology of the All-Union Institute of
Scientific and Technical Information, Academy of Sciences, USSR), 1973,
pp 128-145) (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya,
No 18, 25 September 1973, abstract No 1754)

Translation: The dependence of the development of a cytogenetic and embryo-
tropic effect on long-term exposure was studied in an example of the action
of different groups of chemicals: chlorine releasing substances, phenoxy-
acetic acid esters, triazines, carbamates, epoxy compounds, imines, and
others. The possibility of adaptation of animals to some substances that
cause pathological changes in offspring was demonstrated.

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USSR

UDC 541.49:546.791

VEDOVENKO, V. M., KOZHINA, I. I., SUGLOBOVA, I. G., and CHIRKST, D. E.

"Formation of Complexes in the Systems Uranium Halide - Alkali Metal Halide. Preparation and Structure of Rb_2UBr_6 and Cs_2UBr_6 "

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 54-57

Abstract: Rb_2UBr_6 (I; m. 722° , d_4^{20} 4.45 ± 0.02) and Cs_2UBr_6 (II; m. 736° , d_4^{20} 4.74 ± 0.01) were prepared by melting $RbBr$ and $CsBr$, respectively, with a stoichiometric amount of UBr_4 in a sealed, evacuated quartz tube. I and II were green compounds. Just like UBr_4 , they hydrolyzed readily in the air with the formation of HBr , so that all operations with them had to be carried out in an Ar atmosphere. X-ray diffraction measurements showed that I and II crystallized in the cubic system within the spatial group $Fm\bar{3}m-O_h^2$ and with a structure of the K_2PtCl_6 type. The elementary cell contained 4 formula units. The densities of I and II that followed from X-ray measurements corresponded to the picnometrically determined values of d_4^{20} .

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USSR

UDC 541.49.546.791

VDOVENKO, V. M., SUGLOBOVA, I. G., and CHIRKST, D. E.

"Formation of Complexes in the System Uranium Halide-Alkali Metal Halide. The Enthalpies of Formation of Rb_2UBr_6 and Cs_2UBr_6 "

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 58-60

Abstract: The standard enthalpies of formation of Rb_2UBr_6 (I) and Cs_2UBr_6 (II) at 25° were determined on the basis of data obtained by measuring the enthalpies of solution of the initial bromides, I, and II in an 0.5% solution of FeCl_3 in 2% HCl . The enthalpy of formation from the initial bromides was calculated at 14.8 ± 0.2 and 22.9 ± 0.2 kcal/mole for I and II, respectively, and that of formation from the elemental substances at 427.4 ± 0.8 and 439.1 ± 0.8 kcal/mole for I and II, respectively. A calculation showed that the enthalpy of formation of the gaseous UBr_6^{++} ion ($307.1 - 307.2$ kcal per g-ion) and the energy of the U-Br bond (68.0 kcal/mole.bond) remained unchanged on transition from I to II. Consequently, the higher enthalpy of formation of II from the initial bromides vs. that of I was evidently due to the greater strength of the extraspherical bonds in II.

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USSR

UDC 541.49.546.791

VDOVENKO, V. M., KOZHIMA, I. I., SUGLOBOVA, I. G., and CHIRKST, D. E.

"Complex Formation in the Systems Uranium Halide -- Alkali Metal Halide.
Forms of the Compounds in the Systems Uranium Tetrabromide -- Alkali Metal
Bromide and Their Structural Characteristics"

Leningrad, Radiokhimiya, Vol 15, No 2, 1973, pp 172-177

Abstract: Phase diagrams are reported for the system UBr_4 -MBr and conclusions reached from roentgenographic and thermographic studies concerning the forms of the coordination compounds obtained in these systems. It has been established that the salt systems UBr_4 -MBr ($M = Na, K, Rb, Cs$) form complexes with only a single composition M_2UBr_6 , which appears to be melting congruently, the melting points of individual complexes increasing with the increasing atomic number of the alkali metal. With decreasing atomic number of the alkali metal the cubic face-centered lattice shown by Cs_2UBr_6 and Rb_2UBr_6 undergoes deformation, changing to the tetragonal lattice of K_2UBr_6 . Na_2UBr_6 has a hexagonal structure,

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USSR

UDC 547.341

FRIDLAND, S. V., CHIRKUNOVA, S. K., and ZYKOVA, T. V.

"Interaction of Phosphorus Pentachloride with Some 1,3-dioxolanes. V"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 51-54

Abstract: A study was made of the interaction of phosphorus pentachloride with 2-methyl-4-chloromethyl-1,3-dioxolane in which a 2-step process of the reaction was discovered. A series of esters of β -(bischloromethylmethoxy)-vinylphosphonic acid and β -(α -chloromethylvinylloxy)vinylphosphonic acid were synthesized. The esters obtained were subjected to alkaline dehydroxy-chloridation which was achieved by an alcohol solution of alkali. In the infrared spectra of the dehydroxychlorided esters, two bands were observed in the absorption band of the valence oscillations of the C=C bonds at 1610 and 1621 cm^{-1} .

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UDC 547.341

FRIDLAND, S. V., DALMATOVA, I. K., and CHIRKUNOVA, S. K., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride With Some 1,3-Dioxolanes. IV. Bromination of the Reaction Products"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1916-1919

Abstract: Bromination of β -(β -chloroethoxy)- β -ethylvinylphosphonic acid, β -(β -chloroisopropoxy)isopropenylphosphonic acid, and β -(β -chloroethoxy)-isopropenylphosphonic acid dichlorides was investigated. It was shown that the reaction takes place only with compounds which have a hydrogen atom in α -position to the dichlorophosphoryl group.

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USSR

UDC 547.341

FRIDLAND, S. V., and CHIRKUNOVA, S. K., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Problem of the Bromination of Alkoxyvinylphosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73, pp 1407-1408

Abstract: Bromination of diethyl ester of β -ethoxyvinylphosphonic acid was carried out in CCl_4 at room temperature. After 2 hrs the mixture was distilled twice to yield ethyl bromide in the forerun and ethylbromoacetate in the main body. The phosphorus containing component remained in the nonvolatile residue.

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USSR

UDC 547.341

FRIDLAND, S. V., CHIRKUNOVA, S. K., and MALKOV, Yu. K., Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride With 1,3-Dioxolanes. VI."

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 279-280

Abstract: It was shown that upon heating the crystalline complex obtained from the reaction of phosphorus pentachloride with 2-methyl-1,3-dioxolane yields the dichloride of α -chloro- β -(β -chloroethoxy)vinylphosphonic acid. A formula was proposed for above crystalline complex: $[\text{ClC}_2\text{H}_4\text{OC}(\text{Cl})\text{HCH}_3 \cdots \text{PCl}_5 \cdot \text{POCl}_3]$. Decomposition of this complex with H_2S yields the β -(β -chloroethoxy)vinylthiophosphonic acid dichloride.

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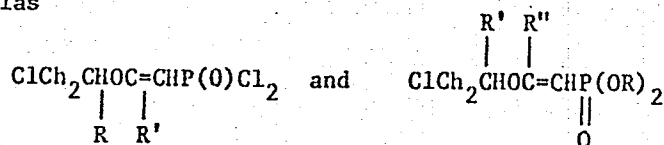
UDC 547.341

FRIDLAND, S. V., CHIRKUNOVA, S. K., ZYKOVA, T. V.

"Interaction of Phosphorus Pentachloride with 1,3-dioxocyclopentanes. III"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CIV), No 1, 1972, pp 117-120

Abstract: The interaction of phosphorus pentachloride with 2-methyl-1,3-dioxolanes leads to the synthesis of acid dichlorides of β -(β -chloraloxo)vinylphosphonic acids [S. V. Fridland, et al., ZhOKh, No 41, 554, 1971]. This reaction was studied further to discover the laws of its occurrence. It was demonstrated that 1,3-dioxolanes substituted in position 2 enter into an interaction with phosphorus pentachloride with the formation of the acid dichlorides of the corresponding phosphonic acids. The properties of the compounds with the general formulas



are tabulated.

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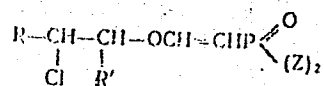
UDC: 547.341.26'118.07

FRIDLAND, S. V., CHIRKUNOVA, S. K., KAMAY, G. Kh., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"A Method of Synthesizing β -(β -Chloralkoxy)vinylphosphonic Acid Derivatives"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302344, Division C, filed 6 Jan 70, published 28 Apr 71, p 80

Translation: This Author's Certificate introduces: 1. A method of synthesizing β -(β -chloralkoxy)vinylphosphonic acid derivatives of the general formula



where Z is chlorine, OR"; R and R' are hydrogen, alkyl. As a distinguishing feature of the patent, substituted 2-methyl-1,3-dihydroxycyclopentane reacts with phosphorus pentachloride in an organic solvent such as benzene, followed by sulfur dioxide treatment of the resultant product and isolation of the final product or conversion to the corresponding ester by conventional methods. 2. A modification of this method distinguished by the fact that the phosphorus

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FRIDLAND, S. V., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71,

pentachloride and substituted 2-methyl-1,3-dihydroxycyclopentane are taken in a ratio of 3:1, respectively. 3. A modification of this method distinguished by the fact that the process is carried out at 5-10°C with subsequent temperature increase to 30°C.

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USSR

UDC: 547.341

FRIDLAND, S. V., ZYKOVA, T. V., CHIRKUNOVA, S. K., KATAYEVA, V. A. and KAMAY, G. Kh. (deceased), Kazan Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride with 2-Methyl-1,3-dioxycyclopentanes. II"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1041-1044

Abstract: On the basis of NMR spectra, it was established that the reactions of phosphorus pentachloride with 2-methyldioxolan, 2,4-dimethyl-dioxolan and β -chloroethylvinyl ether are stereospecific. The acid dichloride of β -(β -chloroalkoxy)vinylphosphonic acid is formed only as the trans-isomer. This acid dichloride was further treated with alcohols to form a series of esters, the physical constants of which are presented in the article.

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USSR

UDC 547.341

FRIDLAND, S. V., CHIRKUNOVA, S. K., KATAYEVA, V. A., and KAMAY, G. Kh.,
(Deceased), Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride With 2-Methyl-1,3-dioxocyclopentanes-1"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 554-556

Abstract: Reaction of phosphorus pentachloride with 2-methyl-1,3-dioxocyclopentanes takes place with a break in the cyclopentyl ring to give dichloroanhydrides of β -(β -chloroalkoxy)vinylphosphonic acids. 200 g of phosphorus pentachloride was added in portions to 28 g ethyleneacetal in 150 ml absolute benzene with vigorous stirring, keeping the reaction temperature at 5°. Then the mixture was heated for one hour at 30°. The complex formed was decomposed after 12 hours with sulfur dioxide to give 40% of the dichloroanhydride of β -(β -chloroethoxy)vinylphosphonic acid, b.p. 141-142°/5 mm, d_4^{20} 1.4868, n_D^{20} 1.522. The dichlorides obtained react with secondary amines, alkaline alcohols, and alkoxides to yield corresponding amides and esters.

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USSR

UDC: 511.84

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Department of Number Theory and the History of Mathematics, Moscow State University

"Concerning the Arithmetical Properties of the Values of Hypergeometric Functions"

Moscow, Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

Abstract: The authors consider the hypergeometric function

$$F(\mu, \nu, \lambda, z) = \sum_{n=0}^{\infty} \frac{\mu(\mu+1) \dots (\mu+n-1) \nu(\nu+1) \dots (\nu+n-1)}{\lambda(\lambda+1) \dots (\lambda+n-1) n!} z^n.$$

The notation

$$F_k(z) = F(\mu_k, \nu_k, \lambda_k, z), \quad \lambda_k \neq 0, -1, \dots, \quad k = 1, \dots, m \quad (1)$$

is introduced. The symbol I denotes the imaginary quadratic field over Q , and d denotes its discriminant. It is assumed that

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USSR

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

$$\mu_i = \frac{a_i}{b_i}, \quad v_i = \frac{v_i}{t_i},$$

$$\lambda_i = \frac{c_i}{d_i}, \quad a_0 = \max \{ |a_i|, |c_i|, |v_i|, b_i, d_i, t_i \},$$

where $b_i \geq 1, t_i \geq 1, d_i \geq 1, a_i, v_i, c_i, i = 1, \dots, m$, are whole rational numbers, $(a_i, b_i) = (c_i, d_i) = (v_i, t_i) = 1$,

$$\sigma_1 = (2m+1) \cdot (20m+1) \sqrt{5(a_0+1)(m+1)},$$

$$n_1 = \max \left\{ \exp \{ 320 (2m+1)^2 \cdot (m+1)^2 \cdot (a_0+1) \} \right\},$$

$$\frac{4a_0(m+2) + \ln(2m+1) + 3 \ln(d)}{(2m+1) \cdot (m+1) \cdot (a_0+1)} \int. \quad (2)$$

The following two theorems are proved:

Theorem 1. Let the functions $F_i(z), i = 1, \dots, m$, be defined by equalities (1); the rational numbers $\mu_i, v_i, \lambda_i, i = 1, \dots, m$, are such that

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NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

not one of the numbers $\mu_i, \nu_i, \lambda_i - \mu_i, \lambda_i - \nu_i, i = 1, \dots, m$, or $\mu_i - \mu_j, \nu_i - \nu_j, \mu_i - \nu_j, i \neq j$, is a whole number, and $\mu_i + \nu_i - (\mu_j + \nu_j), i \neq j$, is different from an even number; in addition, $H, b \in \mathbb{N}, a \neq 0, u_0, u_1, \dots, u_{2m}$ are integers from $\mathbb{I}, |u_i| \leq H, i = 0, 1, \dots, 2m, |u_0| + \dots + |u_{2m}| > 0$ and σ_1, n_1 are defined by equalities (2). Then when

$$b \geq \exp\left(\sigma_1 \sqrt{\ln n_1} + (4m + 2) \ln |a| + \frac{1}{n_1} \ln H\right),$$

we have the relation

$$\left| u_0 + u_1 F_1\left(\frac{a}{b}\right) + u_2 F_2\left(\frac{a}{b}\right) + \dots + u_{2m-1} F_m\left(\frac{a}{b}\right) + u_{2m} F_m\left(\frac{a}{b}\right) \right| \geq \exp(-\sigma_1 n_1 \sqrt{\ln n_1}) b^{-(m+1)n_1}.$$

Theorem 2. Let $\lambda, \mu, \nu \in \mathbb{Q}, \lambda, k, H, b \in \mathbb{N}, \lambda - \mu - \nu \in \mathbb{Z}, \mu, \nu \in \mathbb{Z}, K$ is the algebraic field over $\mathbb{Q}, a \neq 0$ is an integer from K . Then there exist posi-

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NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

tive constants $\sigma_2, \sigma_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4$, which depend on the function $F(\mu, \nu, \lambda, z)$, the number k , and the field K such that when

$$b \geq \sigma_2 |a|^{\gamma_1} H^{\gamma_1}$$

we have the relation

$$\left| P\left(F\left(\mu, \nu, \lambda, \frac{a}{b}\right), F'\left(\mu, \nu, \lambda, \frac{a}{b}\right)\right) \right| \geq \sigma_3 b^{-\gamma_2} H^{-\gamma_2},$$

where $P(z_1, z_2) \neq 0$ is a polynomial of degree k with whole-number coefficients from K no greater than H in absolute value.

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Acc. Nr.: APC029807

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 40-43

GASTRIC JUICE CONTENT OF K⁺ AND Na⁺ IN PATIENTS
WITH HYPERTENSIVE DISEASE

Yu. P. Snopkov and L. F. Chirva (Kharkov)

Patients with hypertensive disease showed certain differences in gastric juice potassium and sodium contents as compared with healthy persons. The concentration of potassium proved decreased and by the end of treatment it tended to increase in patients with hypertensive disease (stages II and III). Advance of hypertensive disease is characterized by decreased elimination of sodium with the gastric juice and sodium concentration remains stably decreased in the process of treatment of hypertension (stages II and III). The treatment plan of patients with severe clinical course of hypertension should include drugs favouring excretion of sodium from the organism.

An inverse dependence was found between the concentration of sodium and partially potassium and the gastric acidforming function.

mK

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UDC 621.317.799:621.382.2

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YEFREMOV, I.S., ZAGAYNOV, N.A., NIKOL'SKIY, I.K., BEZRUKOV, G.I., SLEPTSOV, M.A.,
CHIRVINSKIY, Y.M. [Mosk. energ.in-t--Moscow Power Institute]

"Method Of Continuous Measurement Of The Temperature Of A P-N Junction Of A Rectifier"

USSR Author's Certificate No 275236, filed 26 July 67, published 22 Oct 70
(from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 42598P)

Translation: A method is proposed for continuous measurement of the temperature of the p-n junction of a rectifier, mainly under operational conditions. With the object of increasing the utilization factor of the rectifier power, the temperature of the rectifier case and the current of the loaded rectifier are measured simultaneously, proportional conversions of the parameters measured into uniform signals are performed, these signals are summed and by the magnitude of these sums the temperature of the rectifier's p-n junction is judged.

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1/3 027 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--STRUCTURE AND PARAMETERS OF SPORADIC FORMATIONS IN THE AURORAL
IONOSPHERE -U-
AUTHOR--(03)-USIPOV, N.K., PIVCVAKOVA, N.B., CHIRYAYEV, A.G.
COUNTRY OF INFO--USSR
SOURCE--MOSCCW, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 3, 1970, PP 553-554
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--IONOSPHERE, AURORA, E LAYER, ELECTRON DENSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0534 STEP NO--UR/0203/70/010/003/0553/0554
CIRC ACCESSION NO--AP0132724
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132724

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE THE RESULTS OF SPECIAL IONOSPHERIC MEASUREMENTS MADE DURING THE NIGHTTIME IN WINTER (1965-1967) AT TIKSI STATION. THE OBJECT OF STUDY WAS SPORADIC FORMATIONS ASSOCIATED WITH QUIESCENT AURORAL FORMS (E SUBS OF TYPES A AND R). THE ELECTRON CONCENTRATION LAYER IS CHARACTERIZED BY THREE PARAMETERS: N_{SUBMAX} IS THE MAXIMUM ELECTRON CONCENTRATION, Z_{SUBMAX} IS THE ALTITUDE OF THE MAXIMUM ELECTRON CONCENTRATION, A IS THE HALF THICKNESS OF THE LAYER. FREQUENTLY THERE IS A TRANSITION OF SPORADIC FORMATIONS OF ONE TYPE TO ANOTHER. SUCH TRANSITIONS, CAUSED BY A CHANGE IN THE CORRESPONDING PARAMETERS OF ELECTRON FLUXES, ARE ACCOMPANIED BY A CHANGE IN THE ALTITUDE OF THE MAXIMUM ELECTRON CONCENTRATION. IN MOST CASES AN INCREASE IN THE ALTITUDE OF THE ELECTRON CONCENTRATION MAXIMUM IS RELATED TO AN INCREASE IN HALF THICKNESS OF THE LAYER. THESE CHANGES ARE QUITE SLOW AND EVIDENTLY REFLECT CHANGES IN THE ELECTRON ENERGY AND PITCH ANGLE DISTRIBUTIONS. THE PULSED REGISTRY OF VERTICAL SOUNDING SIGNALS ALSO MAKES IT POSSIBLE TO OBTAIN SOME INFORMATION ON THE MICROSTRUCTURE OF SPORADIC FORMATIONS IN THE AURORAL ZONE. THE MOST IMPORTANT CHARACTERISTICS OF MICROSTRUCTURE OF THE IONOSPHERE AS A TRANSLUCENT TURBID MEDIUM IS THE DEGREE OF TURBIDITY $BETA_{PRIME2}$ EQUALS $E_{SUB0} \cdot PRIME2^{-\sigma} \cdot SUBS \cdot S \cdot PRIME2$, WHERE E_{SUB0} IS THE AMPLITUDE OF THE MIRROR REFLECTED SIGNAL COMPONENT, E_{SUBS} IS THE AMPLITUDE OF THE CORRESPONDING COMPONENT OF THE SPECTRUM OF SCATTERED WAVES, AND ALSO THE DISTRIBUTION FUNCTION OF THE REFLECTED SIGNAL AMPLITUDES.

UNCLASSIFIED

3/3 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132724

ABSTRACT/EXTRACT--THE BETA PARAMETER IS DETERMINED FROM EXPERIMENTAL DATA OBTAINED FROM 65 SERIES OF PULSED REGISTRY OF THE AMPLITUDE OF REFLECTED SIGNALS FOR TYPES A AND R. IT WAS FOUND THAT IN 90PERCENT OF THE CASES BETA GREATER THAN 1; FOR SPORADIC FORMATIONS OF TYPE A BETA IS APPROXIMATELY EQUAL TO 2, WHEREAS FOR SPORADIC FORMATIONS OF TYPE R THERE IS A PREDOMINANCE OF BETA GREATER THAN 2. THE RESULTS INDICATE AN INTERRELATIONSHIP BETWEEN THE MACROPARAMETERS OF SPORADIC FORMATIONS OF THE E REGION IN THE AURORAL IONOSPHERE AND THEIR FINE STRUCTURE. FOR EXAMPLE, WITH A DECREASE IN ALTITUDE OF THE ELECTRON CONCENTRATION MAXIMUM THE INTERNAL STRUCTURE OF SPORADIC FORMATIONS BECOMES MORE COMPLEX.

FACILITY: RADIOELECTRONICS INSTITUTE, LENINGRAD DIVISION, INSTITUTE OF TERRESTRIAL MAGNETISM, IONOSPHERE AND RADIO WAVE PROPAGATION. FACILITY: INSTITUTE OF SPACE PHYSICS RESEARCH AND AERONAUTICS, YAKUTSK AFFILIATE ACADEMY OF SCIENCES USSR, SIBERIAN DEPARTMENT.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ANATOMY OF REFLEX REGULATION OF GASTRIC FUNCTION -U-

AUTHOR--CHISLOVSKIY, K.R. C

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 50-53

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GASTROINTESTINAL SYSTEM, REFLEX, SELF REGULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--1986/0963

STEP NO--UR/0475/70/000/003/0050/0053

CIRC ACCESSION NO--AP0102902

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANATOMICAL ARGUMENTATION IS PRESENTED OF THE REGULATION OF THE FUNCTIONAL REFLEX SYSTEM OF VITAL ORGANISM CONSTANTS. ANALYSING THE REFLEX REGULATION OF GASTRIC FUNCTION THE AUTHOR DESCRIBES THE CLINICAL ANATOMY OF THE BRAIN STEM AND SUBSTANTIATES ANATOMICALLY OBSERVED BULBAR SEGMENTAL SYMPTOMS, NEUROHUMORAL SYNDROMES, BULBAR SYNDROMES OF PARTIAL AND COMPLETE TYPES OF BRAIN STEM PARALYSIS.

UNCLASSIFIED

USSR

UDC 535.214.089.6

OSMOLOVSKIY, S. R. and ~~CHISTAKOV, V. A.~~

"Calibration of Radiometers Within the Range of Temperatures Close to the Surrounding Medium"

Moscow, Metrologiya, No 7, 1972, pp 40-49

Abstract: The problem concerns the calibration of radiation-equipment radiometers for temperatures close to the temperature of the surrounding medium. The basic requirements for the calibration equipment are defined. A description of the developed emitters is presented, together with results of research on them. The circuit for controlling the emitter temperature stability is illustrated by a diagram. The errors of radiometer calibration on the basis of the emitters are analyzed. 2 tables. 3 figures. 5 references.

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USSR

UDC 547.341

GALISHEV, V. A., CHISTIKLETOV, V. N., PETROV, A. A., and TAMM, L. A.,
Leningrad Technological Institute imeni Lensovet

"1,3-Dipolar Addition to Unsaturated Compounds. XXXI. Reactions of Organic
Azides With α,β -Unsaturated Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1470-1472

Abstract: The reactions of organic azides of α,β -unsaturated phosphines were
investigated. It was shown that in the cases studied, the double bond is not
involved in the reaction so that novel unsaturated phosphineimines are formed.

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USSR

UDC 547.341

TAMM, L. A., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute imeni Lensovet

"1-3-Bipolar Addition to Unsaturated Compounds. 30 Communication. Reaction of α,β -Acetylene Phosphonites With Nitrileimines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2178-2183

Abstract: Reactions of alkynylphosphonites with C,N-substituted nitrileimines lead to the formation of cyclic phosphinates regardless of the type of substituent at the β -carbon atom of the acetylenic group and the nature of the substituent of the nitrileimine. The reaction begins by a nucleophilic attack of the phosphorus atom on the electron deficient C-atom of the nitrileimine forming cyclic methylenephosphoranes which are converted to quasiphosphonium salts. The latter undergo Arbuzov rearrangement forming respective cyclic phosphinates.

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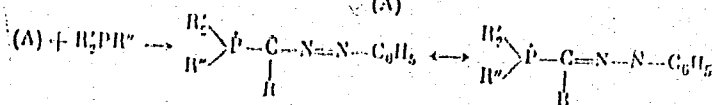
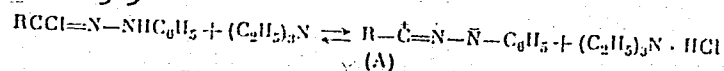
UDC 547.241

KONOTOPOVA, C. P., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute imeni Lensovet

"The Reaction of Nitrilimines with Phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2412-2415

Abstract: A study was made of the influence of the substitutions in nitrilimines having the general formula $RCCl=N-NHC_6H_5$ on the direction of the reaction with $(C_2H_5)_3N$ as follows:



The R' and R'' groups were mainly short chain alkanes or aromatics. The R group was general either an aromatic or an ester. It was determined that the nature of the substitutions on the phosphorus atoms did not change the path

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KONOTOPOVA, G. P., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2412-2415

of the reaction significantly; however, the substitution on the carbon atom in the nitrilimines governed whether the products were azoylides or phosphonous salts. An R group such as C_2H_5OOC resulted in the former and C_6H_5 in the latter. Preparations, physical data and IR spectra are given.

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USSR

UDC 547.351

TAMM, L. A., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute

"1,3-Dipolar Addition to Unsaturated Compounds. XXIX. Reactions of α, β -Alkynylphosphines with Nitrileimines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1926-1930

Abstract: An investigation of the structural effects of C,N-substituted nitrileamines on the course of their reactions with various α, β -acetylenephosphines was carried out. It was established that the reactions of α, β -acetylenephosphines with nitrileamines, in contrast to α, β -ethylenephosphines, are less sensitive to the steric hindrance at the β -carbon atom of the ethynyl group and towards the nature of substituents at the carbon atom of the nitrileamines. For example, in the reaction of ethynyl-, propynyl-, and phenylethynyldiphenylphosphines with C-(p-nitrophenyl)- and C-carboethoxy-N-phenylnitrylimines, only cyclic phosphonium salts are formed. This probably due to higher activity of the sp-hybridized carbon atom in the reactions with nucleophilic reagents.

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USSR

UDC 547.341

KONOTOPOVA, S. P., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Reactions of Trivalent Phosphorus Acid Amides With Nitrileamines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 987-991

Abstract: The reactions of trivalent phosphorus acid amides with nitrileimines was studied by reacting tripiperidyl-, trimorpholyl-, hexaethyl-, hexamethyl-triamides of phosphorous acid, phenyldipiperidyl diamide of phosphonous acid and diphenyldimethylamide of phosphinous acid with C-carbethoxy-, C-acetyl-, C-(4-nitrophenyl)- and C-phenyl-N-acylnitrylimines. It was established that the substituents on the phosphorus component have no effect on the course of the process, the C-atom substituents leading to the formation of azomethylene phosphoranes or salts. For example, C-carbethoxy- and C-acetyl-N-arylnitrileimines form stable azomethylenephosphoranes with all the amides studied, while C-phenyl- and C-(4-nitrophenyl)-N-phenylnitrylimines yield salts.

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USSR

UDC 547.341

KONOTOPOVA, S. P., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad
Technological Institute imeni Lensovet

"Reactions of Aminophosphines With 1,3-Bipolar Systems"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, p 235

Abstract: Tertiary phosphines react with nitrileimines to give phosphoranes.
The authors found that the reaction of nitrileimines with aminophosphines proceeds analogously, apparently through the intermediate formation of betaines.

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USSR

UDC 547.558.1

MINGALEVA, K. S., CHISTOKLETOV, V. N., KOSOVITSEV, V. V., and PETROV, A. A.,
Leningrad Technological Institute imeni Lensovet

"Dipole Moments and the Structure of Alkenylphosphines and of the Derivatives
of Phosphonous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 862-865

Abstract: Dipole moments were used in a study analyzing the distribution of electron density in alkenylphosphines and in derivatives of alkenylphosphonous acids. Replacing an ethoxy group in triethyl phosphite by a vinyl group led to a slight drop of the dipole moment, as did the replacement of α or β hydrogen atoms in $(C_2H_5O)_2PCH:CH_2$ by methyl groups. Replacement of a $(C_2H_5)_2P$ group by $[(CH_3)_2N]_2P$ has practically no effect on the dipole moment. In general the electron state of the phosphorus atom in above compounds depends on the substituents. As the p character of the unshared pair of electrons of the phosphorus atom increases, its acceptor capacity is decreased.

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USSR

UDC 547.345+543.422.4

KOLOKOL'TSEVA, I. G., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute imeni Lensovet

"1,3-Bipolar Addition to Unsaturated Compounds: XXV. Dipolarophilic Activity of Organophosphorus and Organosilicon Unsaturated Compounds With 1,3-Bipolar Systems"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2618-2622

Abstract: Since any conjugation will increase dipolarophilic activity of multiple bonds in the reactions with 1,3-dipolar systems; it was attempted here to establish the effect of organosilicon and organophosphorus substituents on dipolarophilic activity of multiple bonds, using the method of competing reactions.

It was shown that in the case of diphenylnitrilimine, the rate of addition increases with increasing electrophilicity of the double bond of the compounds investigated. The N-oxide of benzonitrile, the variation in dipolarphilic activity in the dipolariphiles studied is inadequate for their activity in reactions with diphenylnitrilimine.

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USSR

UDC 547.241

KOSOVITSEV, V. V., CHISTOKLETOV, V. N., and PETROV, A. A., Lengr. Techno. Inst.

"1,3-Bipolar Addition to Unsaturated Compounds. XXVI. Reaction of Vinyldiphenylphosphine With C-Carbethoxy-N-Arylnitrilimines"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2570-2573

Abstract: The reactions of vinyldiphenylphosphine with five different C-carbethoxy-N-arylnitrilimines were studied; the results showed that they proceeded similarly to the same reactions of diphenylnitrilimine, with formation of cyclic phosphonium salts.

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USSR

UDC 547.558.1

KOSOVTSSEV, V. V., CHISTOKLETOV, V. N., PETROV, A. A., Leningrad
Technological Institute imeni Lensovet, Leningrad, Ministry of
Higher and Secondary Specialized Education RSFSR

"Reaction of Triphenylphosphine With Nitrilimines"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 2132-2133

Abstract: It was shown that nitrilimines with electron-accepting groups at the C-atom react with triphenylphosphine yielding stable azo-ylides. The reaction begins by a nucleophilic attack of a phosphine molecule on the nitrilimine carbon atom. The unstable betaine formed converts to the azo-ylide whose stability is due to the electron-accepting group at the ylde carbon atom.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--1,3,DIPOLAR ADDITION TO UNSATURATED COMPOUNDS. XXIII. REACTIONS OF
ALPHA,BETA,UNSATURATED PHOSPHINES WITH DIPHENYLNITRILIMINES -U-
AUTHOR-(03)-KOLGKOLTSEVA, I.G., CHISTOKLETOV, V.N., PETROV, A.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. BOSHCH. KHIM. 1970, 40(3), 574-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IMINE, HETEROCYCLIC NITROGEN COMPOUND, ORGANIC PHOSPHORUS
COMPOUND, ORGANIC AZOLE COMPOUND, BENZENE DERIVATIVE, ORGANIC SYNTHESIS,
CHEMICAL REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1366 STEP NO--UR/0079/70/040/003/0574/0578
CIRC ACCESSION NO--AP0128767
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

GIRC ACCESSION NO--AP0128767

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING AN EQUIMOLAR MIXT. OF PH SUB2 PCH:CH SUB2, 1,5-DIPHENYLTETRAZOLE, AND ET SUB3 N.HCL IN MESITYLENE 3 HR GAVE 66PERCENT I, M. 235-70DEGREES. PH SUB2 PC TRIPLE BOND CH AND PHNH:N:CCLPH WITH ET SUB3 N-C SUB6 H SUB6 GAVE AFTER 1 DAY AT ROOM TEMP. AND 1-2 HR ON A STEAM BATH, 98PERCENT II (R EQUALS H), M. 244-50DEGREES: SIMILARLY WERE PREPD. II (R EQUALS ME), M. 243-50DEGREES, AND II (R EQUALS PH) M. 150-20DEGREES. II, R EQUALS H AND 3PERCENT AQ. KOH GAVE 73PERCENT PH SUB2 P(O)CH:CHNPHN:CHPH (III) M. 214-15DEGREES. SIMILARLY TO I WAS PREPD. 50PERCENT PH SUB2 P(O)(CH SUB2) SUB2 NPHN:CHPH, M. 184-50DEGREES, WHEN PH SUB2 PCH:CH SUB2 AND DIPHENYLNITRILIMINE WERE ALLOWED TO REACT IN THE PRESENCE OF CONTROLLED AMT. OF H SUB2 O. III WAS HYDROGENATED OVER RANEY NI IN ETOH TO 68.9PERCENT PH SUB2 P(O)(CH SUB2) SUB2 NHPH (IV), M. 132-40DEGREES. REFLUXING PH SUB2 P(O)CH:CH SUB2 WITH PHNH SUB2 AND PHNH SUB2 .2HCL 5 HR GAVE 50PERCENT IV, M. 132-40DEGREES. REACTION OF PH SUB2 PCH:CH SUB2 WITH PHCCL:NNHPH AND ET SUB3 N AT 20DEGREES 3 HR GAVE 60PERCENT I; WITH 2 MOLES PH SUB2 PCH:CH SUB2 THIS ROSE TO 83PERCENT, WHILE WITH 2 MOLES ET SUB3 N IT ROSE TO 78PERCENT, DECREASE OF PROPORTION OF ET SUB3 N OR ITS ELIMINATION CAUSED A SHARP DECLINE OF THE YIELD. THIS SUPPORTS THE REACTION MECHANISM IN WHICH THE PRIMARY PRODUCT IS V. FACILITY: Leningrad. Tekhnol. INST. IM. LENSovETA, Leningrad, USSR.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--POLYMERIZATION OF BENZENE UNDER ULTRAHIGH PRESSURE CONDITIONS
COMBINED WITH SHEAR STRAIN -U-
AUTHOR--(04)--CHISTOTINA, N.P., ZHAROV, A.A., KISSIN, YU.V., YENIKOLOPYAN,
N.S.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 632-4 (PHYS CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMERIZATION, ULTRAHIGH PRESSURE, SHEAR STRESS, BENZENE,
POLYMER STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0726 STEP NO--UR/0020/70/191/003/0632/0634
CIRC ACCESSION NO--AT0124396
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO—AT0124396

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. PURIFIED C SUB6 H SUB6 WAS POLYMD.
IN A BRIDGEMAN ANVIL LIKE APP. UNDER A PRESSURE OF 85,000 ATM AT TEMPS.
OF 0 TO MINUS 5DEGREES AND AT A SHEAR OF 75DEGREES (UNCER AR OR AIR).
SPECTRAL DATA REVEALED THAT THE BROWN PRODUCTS HAD A POLYENE STRUCTURE.
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 534.222

LYAKHOV, G. M., OKHITIN, V. N., CHISTOV, A. G., Moscow

"Shock Waves in Soil and in Water Near the Detonation Point"

Moscow, Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 151-159

Abstract: A study was made of the problem of propagation of a plane shock wave in soil and in water by the characteristics method using a computer. The soils were considered as multicomponent media in accordance with the previously proposed model [G. M. Lyakhov, Izv. AN SSSR, OTN, Mekhanika i mashinostroyeniye, No 1, 1959; Osnovy dinamiki vzryva v gruntakh i zhidkikh sredakh, Nedra Press, Moscow, 1964]. The wave parameters and the dimensions of the gas chamber were compared in soils with different component contents and in water. The calculated wave parameters in three media near the detonation point correspond to the experimental data showing that p , u and D (the pressure and velocity of the particles and the particles and detonation point, respectively) at the front in water saturated soil with $\alpha_1 = 0$ (no gaseous component) have larger values than in water. Even a small amount of air in water saturated soil leads to a noticeable decrease in p , u , D . On going away from the detonation point, the intensity of the decrease in these values in the soil containing air by comparison with soil where $\alpha_1 = 0$ increases. The time of effect of the wave increases with distance.

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USSR

UDC 51.330.115

POLEZHAYEV, A. P., ~~CHISTOV, V. K.~~

"Control of Development of Complex Systems Under Conditions of Uncertainty"

Mat. Vopr. Upr. Proiz-vom. Vyp. 2 [Mathematical Problems of Production Control, No. 2 -- Collection of Works], Moscow, Moscow University Press, 1970, pp 605
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4, V605).

No Abstract.

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JSSR

UDC: 681.3.06:51

VOROB'YEV, V. M., GOGINA, M. A., KONONENKO, I. A., and CHISTOV,
V. P.

"Programming System of the Extended FORTRAN Language for the
BESM-8 Computer"

Sb. nauch. tr. Chelyabinsk. politekhn. in-ta (Collection of Scientific Works of the Chelyabinsk Polytechnical Institute) No 138, 1973, pp 93-98 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B151)

Translation: The purpose of extending the FORTRAN language was to create a non-machine-oriented language for recording algorithms of symbolic and digital information permitting the use of a language translator in all machines with a minimum of construction. It was also proposed to provide a succession of algorithms written in the LYAPAS language and an absorption of the broadened language by languages of higher level -- the PL/1 language, for example.

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VOROB'YEV, V. M., et al., Sb. nauch. tr. Chelyabinsk. politekhn. in-ta,
No 138, 1973, pp 93-98

This last language could not be fully realized due to a number of syntactical and semantic contradictions in the FORTRAN and LYaPAS languages. It is noted that the essential characteristic of the extended language is the possibility of using it in operands of "lines of symbols" and "lines of bits" of arbitrary length. This required taking special measures for considering the effect of changes in the operand length of the computation process.

In a version in which the length of the operands may be equal to the length of the machine word there is no need for this consideration, and the translated programs are done faster. Compound names used for the formation of "cut-ins" and "cut-outs" and "lines of bits" and "lines of symbols" are introduced into the extended language. The principles for the construction of the translator and for the translation of R text into F text are given. Organization of the translation system is described. N. V.

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USSR

UDC 614.73:[541.15:542.2

CHISTOV, Ye. D., OSIPOV, V. Ye., SPRYGAYEV, I. F., SOLODIKHINA, L. D., and
DZHAGATSPANYAN, R. V.

"Radioactive Contamination in a Radiochemical Reactor"

Moscow, Figiyena i Sanitariya, No 6, 1970, pp 76-80

Abstract: A study of the design and mode of operation of the RS-2.5, the first Soviet industrial radiochemical reactor, which is used to sulfochlorinate saturated hydrocarbons and initiate Co^{60} gamma radiation is presented. It consists of a central axial irradiating unit, Co^{60} sources hermetically sealed in spherical cassettes, nonradioactive spheres, storage place for sources, distributing mechanisms, and biological protection. Radiocontamination of the inactive spherical elements of the reaction is well below the level permitted for radioactive preparations. Additional sealing of radioactive Co^{60} preparations in cassettes would decrease the possibility of the casing of the sources breaking and contaminating the atmosphere.

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USSR

UDC 541.13

BURSHTEYN, R. KH., PSHENICHNIKOV, A. G., TARASEVICH, M. R., CHIZMADZHEV, YU. A., and CHIRKOV, YU. G., Institute of Electrochemistry Academy of Sciences USSR, Moscow

"Moisture Exchange in Hydrogen-Oxygen Cell with a Capillary Membrane. II. Cells with a High Moisture Capacity"

Moscow, Elektrokimiya, Vol 9, No 1, Jan 73, pp 107-115

Abstract: Analysis of the moisture exchange process in hydrogen-oxygen element with a capillary membrane and with electrodes exhibiting buffering capacity makes it possible to determine certain advantages of the "open" system (moisture exchange occurs on both electrodes) in comparison to the "closed" system (the moisture exchange occurring only at the hydrogen electrode). When the moisture exchange is sufficiently large in open systems (in contrast to the closed systems), the volume of the liquid in the electrode does not depend on the current charge. Therefore in such a case there are no limitations in regard to the current magnitude in the element.

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1/3 027 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THE SYNDROME OF ADDUCENT LOOP AFTER RESECTION OF THE STOMACH -U-
AUTHOR--(02)-CHISTOVA, M.A., SERGEYEV, V.V. C
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 4, PP 40-48
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, SURGERY, STOMACH, LIVER,
GALLBLADDER, PANCREAS, DUODENUM, SECRETION, BILE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1214 STEP NO--UR/0531/70/000/004/0040/0048
CIRC ACCESSION NO--AP0054110
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054110

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS OBSERVED 61 PATIENTS WITH A CHRONIC SYNDROME OF ADDUCENT LOOP, IN ONE OF THEM THERE WAS AN INTERMITTENT ACUTE OCCLUSION OF THE ADDUCENT LOOP. A MILD FORM OF THE SYNDROME WAS DIAGNOSED IN 20 PATIENTS, MODERATE SEVERITY, IN 29, SEVERE, IN 11 PATIENTS. THE MECHANICAL CAUSES OF IMPAIRED EVACUATION FROM THE ADDUCENT LOOP WERE REVEALED IN 36 PATIENTS: IN 22, REFLUX IN TO THE ADDUCENT LOOP, IN 14, STENOSIS OF THE ADDUCENT LOOP. THE MULTIFORM SYMPTOMATICS OF THE SYNDROME OF ADDUCENT LOOP IS ASSOCIATED WITH THE MECHANISM OF OCCURRENCE OF IMPEDED EVACUATION FROM THE ADDUCENT LOOP, LOCALIZATION OF THE SITE OF IMPAIRED OUTFLOW OF THE CONTENTS OF THE ADDUCENT LOOP, VOLUME AND ELASTICITY OF THE INTESTINAL SECTION, PARTIAL OR COMPLETE OCCLUSION OF THE ADDUCENT LOOP, THE DURATION OF IMPAIRED PATENCY IN THE ADDUCENT LOOP, REACTION OF THE LIVER, GALLBLADDER AND PANCREAS TO OBSTRUCTION IN THE DUODENUM, COMPLICATIONS OF THE DUODENAL STUMP, DISTURBANCES OF HYDROIONIC AND ACID BASE STATE DUE TO THE LOSS OF A SIGNIFICANT QUANTITY OF BILE, PANCREATIC JUICE AND SECRETA OF THE DUODENUM. IN THE CLINICAL PICTURE THE MOST PROMINENT IS PAIN OF EXPULSIVE OR SEIZURE LIKE CHARACTER IN THE EPIGASTRIC REGION, RIGHT SUBCOSTIUM AND BILE VOMITING. THE STUDIES HAVE SHOWN THAT IN PATIENTS WITH A CHRONIC SYNDROME OF ADDUCENT LOOP (MODERATE AND SEVERE) THE FOLLOWING ARE OBSERVED: REDUCTION OF THE EXCRETORY FUNCTION OF THE LIVER, SHORTENING OF THE LATENT PERIOD OF CONTRACTION OF THE GALLBLADDER AND INCREASED FORCE OF ITS CONTRACTION, DECREASE OF DIGESTION AND ASSIMILATION OF FATS.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054110

ABSTRACT/EXTRACT--CHOICE OF THE METHOD OF RECONSTRUCTIVE OPERATION WAS BASED ON ASSESSMENT OF THE GENERAL STATE OF THE PATIENT, CHARACTER OF ANATOMICAL CHANGES, REVEALED DURING THE REPEATED OPERATION, 25 PATIENTS WERE OPERATED: SECONDARY JEJUNOGASTROPLASTY WAS DONE IN 10 PATIENTS, RECONVERSION OF BILLROTH II INTO BILLROTH I IN 9 PATIENTS, SECTION OF THE ADDUCENT LOOP AND PLACEMENT OF AN Y FORM ENTEROENTEROSTOMY ANASTOMOSIS, IN ONE PATIENTS AND PALLIATIVE OPERATIONS, IN 4 PATIENTS WITH A RELAPSE OF CANCER OF THE STOMACH. RECONSTRUCTIVE OPERATIONS ELIMINATE THE OBSTRUCTION IN THE ADDUCENT LOOP, CREATE CONDITIONS FOR IMPROVEMET OF THE FUNCTION OF THE HEPATOPANCREATODUODENAL SYSTEM.

UNCLASSIFIED

Veterinary Medicine

USSR

UDC 619:616.988.73-036.2:636.5

SYURIN, V. N., OSIDZE, N. G., CHISTOVA, Z. Ya., and RODIN, Yu. V., Moscow
Veterinary Academy

"The Epizootiological Potential of Fowl Influenza Virus"

Moscow, Veterinariya, No 8, Aug 72, pp 41-43

Many reports have appeared in recent years on the isolation of antigenically different variants of fowl influenza viruses, both pathogenic and weakly pathogenic, and not only from chickens but from ducks, turkeys, geese, quail, pheasants, seagulls and other species. At the same time it was reported that a large number of isolated influenza strains varied not only with respect to antigenic properties, but also with respect to pathogenicity for birds of various ages.

Bakos and Dinter in 1949 were the first to report the presence of fowl influenza virus with antigenic variants in such strains. They succeeded in isolating in Bavaria an antigenic variant of chicken influenza virus (strain N) which possessed a strong pathogenicity for chicks but was apathogenic for adult fowl. Ten years later a similar (chick) strain of influenza virus was isolated in Scotland and was called, in accordance with international classification, A/chicken/Scotland/59.

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In the Soviet Union an analogous strain was isolated in 1967 at one of the poultry farms during an outbreak which was characterized by a rapid course, infection of the respiratory organs and of the gastrointestinal tract and a high degree of fatality. The isolated strain was thoroughly studied and designated by us according to the nomenclature of the VOZ at that time as influenza virus type A -- A/chicken/USSR/314/67.

In the 1966-1970 period in a number of countries a number of influenza virus strains were found which differed from each other by a large number of indexes (A. L. Kornilova, 1960; Ye. M. Kozhevnikov, A. A. Bobrov, 1961; N. G. Osidze, V. N. Syurin, 1970; P. F. Tsimokh, 1966; Dinter, 1964; Frano et al., 1958). It became necessary to reclassify all of the isolated fowl strains.

The following classification of fowl influenza etiologic agents was proposed by the Council on the Classification of Influenza Viruses of the VOZ in 1971 (Table).
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Classification of Fowl Influenza Etiologic Agents

Provisional Designation of Serotypes	Standard Strain*
A1	A/KehP/Dar/27
A2	A/chicken/Germany/49
A3	A/duck/England/56
A4	A/duck/Czechoslovakia/56
A5	A/Currassow/South Africa/61
A6	A/turkey/Massachusetts/65
A7	A/duck/Ukraine/1/63
A8	A/turkey/Ontario/6118/68

*Notation. The fowl influenza virus strain A/chicken/USSR/314/67 which we isolated in 1967 belongs to the serotype A5, the strain A/chicken/USSR/315/70, isolated in 1970 -- to the serotype A6. During an epizootic of fowl influenza in 1970-1972, 13 strains were isolated belonged to serotype A6 with strain A/chicken/USSR/315/70

This classification can hardly be considered complete. However, in the practical (diagnostic) sense, by using this table and having the diagnostic 3/11

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tools prepared from the standard strains it becomes easier to make one's way through the chaos of isolated virus strains that are growing in number with each year. Changes in the antigenic structure of fowl influenza virus strains under natural conditions occur continually, frequently in the absence of concrete antigenic differences, so that the classification of fowl influenza viruses into types that are different from influenza viruses shared by men and horses, is impossible.

Clinically, fowl influenza can appear in various forms. Classical fowl plague, whose etiologic agent is also related to influenza virus, is characterized by a short incubation period, elevated temperature, depression, cessation of ovulation, infection of respiratory organs and of the gastrointestinal tract, diarrhea, acute cyanosis of the comb and lobes, and a high fatality rate within 24-40 hours. The death rate in these cases reaches 80-100%. And in very acute cases it is not always possible to record the enumerated symptoms of the disease. At the present time recordings are being made of enzootic outbreaks of diseases whose etiologic agents are related to fowl influenza virus but which are less severe. Symptoms are limited to depression, reduced egg yield, infection of the respiratory or gastrointestinal tract (diarrhea) with subsequent recovery

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in two to three weeks (Lang et al., 1965; McQueen et al., 1968, Rogerts, 1964). Death of infected fowl may not exceed 5-10%. Upon section of the killed sick bird one finds catarrhal infections of the mucous membranes of the respiratory pathways, catarrhal-hemorrhagic enteritis and nephritis. Influenza virus in similar cases can be comparatively easily isolated from many sick birds at the site of infection. However, in this case there is the difficulty of precisely reproducing experimental infections that are identical to the natural picture of the disease. Similar situations have been reported by many investigators. Thus, Roberts (1964) could not reproduce duck influenza with the strain A/duck/England/62, and proposed that in addition to the virus, specific stress factors are essential for the development of infection. In the experimental infection of turkeys by the strain A/turkey/Wisconsin/66, supercooling of the bird was an obligatory condition for reproducing the disease. In addition, success of an experimental reproduction of the disease often depends on the bird's age.

In 1970 at some poultry farms in Moscow Oblast, enzootic outbreaks of fowl disease were recorded almost simultaneously in populations immune to pseudopest. Outbreaks were highly contagious. The illness primarily affected

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egg-laying hens, and there were outbreaks of the disease among young hens also. Sick fowl were depressed, refused to eat; the egg yield was reduced and diarrhea was the primary clinical symptom. Although the death rate among infected fowl did not exceed 2-5%, forced slaughter of infected fowl reached 30%. The clinical course of the disease was from 12-20 days. Changes noted in dead and sacrificed fowl were in the form of catarrhal-hemorrhagic enteritis, ovaritis, and nephritis. In the majority of cases the bird recovered after two to three weeks of illness and its productivity was restored.

Fowl at one of the farms where the pathogen and its corresponding antibody were isolated were examined. The outbreak initially occurred among 180-day old chickens vaccinated against pseudopest with the La Sota and B₁ vaccines. After 10 days it spread to several young fowl. Pseudopest as well as bacterial infections and intoxications were excluded. Section of the dead and sacrificed fowl in the agony state disclosed catarrhal-hemorrhagic enteritis, ovaritis, and nephritis.

Hemagglutinating agents were isolated from the brain, internal organs and intestine of fowl on the third day of the disease. In subsequent studies,
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all of the isolated material was identical. Virus was isolated by infecting chick embryos in the allantoic cavity and in the chorio allantois membrane as well as in chick embryo kidney tissue. Hemagglutinating activity with respect to chick erythrocytes in titers of 1:8-1:64 was found on the first passage.

The virus multiplied during the first five passages, causing death and hemorrhagic diathesis. Its pathogenicity for the embryos decreased with an increase in the number of passages, and the number of dead fowl with clear symptoms of hemorrhagic diathesis began to fall. However, the hemagglutinating activity of the virus increased by the eighth passage (titer 1:512-1:1024). The isolated strain agglutinated arithrocytes of sheep and horses also.

The strain was examined in the hemagglutination reaction with specific sera against pseudopest, classical fowl plague and various fowl influenza strains, and human influenza virus. The isolated strain was antigenically different from the fowl influenza virus variant. In a complement fixation reaction with a rat type antiserum against human influenza type A, the strain showed a clear relationship in its S antigen to the human type A influenza virus, and 7/11

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in the neutralization and hemagglutination inhibition reaction, it resembled American turkey influenza strain A/turkey/Wisconsin/66. This strain was provisionally designated A/chicken/USSR/315/70.

Subsequently, the isolated strain was studied for pathogenic and antigenic properties. For the purpose of experimentally reproducing the infection, 19 180-day old chickens were infected with this strain by various methods: feeding a virus-containing suspension of the internal organs of sick fowl; administration of a viral suspension from the second passage intratracheally, intramuscularly, intrabursally and orally. Healthy fowl were placed with each infected group of birds for the purpose of infection. No precise clinical manifestations of the disease were noted. The experimental group was killed after 15 days. Antihemagglutinins against the homologous strain A/315/70 in titers of 1:10-1:320 were found in the blood serum of infected fowl as well as in those infected by contact. Section of 12 birds showed catarrhal-hemorrhagic enteritis and nephritis in 10 birds.

In order to study the immunobiological relationship between strain A/315/70 and the etiologic agent of Newcastle disease (strain T) and classical fowl
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plague (strain P₅), four 21-day old chicks, immunized against Newcastle disease, were infected with strain A/315/70 in a dose of 10⁶ EID₅₀/0.2 intramuscularly and were placed next to two birds for contact. Four more fowl were infected with a highly virulent Newcastle disease virus (strain T). All of them became ill in three days and perished with the pathoanatomical changes characteristic of this infection.

No clinical signs of the disease were noted in birds infected by the virus A/chicken/USSR/315/70. The birds were killed after 17 days. Upon sectioning, catarrhal-hemorrhagic enteritis was found in two of the infected birds and one in which infection was caused by contact. The antibody titers against the virus A/315/70 in infected fowl and those infected by contact ranged within the limits 1:40-1:160. A virus identical to strain A/315/70 was reisolated from two of the killed birds (infected and contact) with the most acute catarrhal-hemorrhagic enteritis. At the same time 49-day-old birds, vaccinated against Newcastle disease aged 20 and 33 days, and having an antibody titer (hemagglutination inhibition reaction) against Newcastle disease virus within the range of 1:40 to 1:320, were infected with virus A/315/70 or Newcastle disease virus and injected with a vaccine of strain P₅ of classical 9/11

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plague virus, and then also infected with virus A/315/70 intratracheally in the same dose. A slight depression was noted from the second to fifth day in fowl infected only with A/315/70 virus. After 14 days one of them perished with enteritis symptoms: A virus was isolated from its organs that was identical to strain A/315/70, and the antibody titers in the remaining birds against strain A/315/70 were 1:160-1:640. Characteristic pathological-anatomical changes were noted in one chick. A virus identical to A/315/70 was re-isolated from two vaccinated birds by strain P₅ (antibody titers 1:80-1:320) and infected by virus A/315/70 after 10 days.

An antigenic and immunobiological connection between the isolated strain of fowl influenza A/315/70, Newcastle disease virus and the virus of classical fowl plague was not demonstrated. The isolated virus turned out to be a new antigenic variant of fowl influenza.

An epizootic potential is indicated for fowl influenza viruses, which are little known to practicing physicians and scientific associates.
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USSR

SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

Abstract: The article cites a modern classification of the pathogens of fowl strain A/chicken/USSR/315/70, which turned out to be a new antigenic variant of fowl influenza virus. No antigenic or immuniobiological connection was found between the isolated strain, Newcastle disease virus and the virus of classical fowl plague. The data indicate the epizootiological potential of fowl influenza virus.

11/11

USSR

UDC: 534.784

MUTNIKOV, V. N., CHISTOVICH, L. A., Institute of Physiology imeni I. P. Pavlov, Academy of Sciences of the USSR

"Fluctuations of the Phoneme Boundary"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 4, 1973, pp 571-579

Abstract: Previous studies by these authors have attempted to show that the acoustic equivalent of a stationary vowel is a loudness density curve. Experiments were done to find a procedure for analyzing the loudness density curve to decide whether a vowel belongs to the phoneme group [u, ü, ɤ, i], or to group [o, ö, e, a, æ]. The resultant experimental data supported the hypothesis that the frequency position of the absolute maximum on the loudness density curve determines choice of the phoneme group. If this hypothesis is indeed true, then it should be possible to experimentally establish the phoneme boundary by determining the frequency contour of equal loudness.

In this paper the authors conducted such phoneme boundary experiments which showed that the acoustic equivalent of a vowel

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USSR

MUTNIKOV, V. N., CHISTOVICH, L. A., Akusticheskiy Zhurnal, Vol 19, No 4, pp 571-579

(curve of loudness density distribution) does not remain fixed with presentation of the same stimulus. The observed fluctuations constitute a low-frequency phenomenon, and while they may make absolute recognition of a single vowel difficult, they cannot interfere with the ability to distinguish between two different vowels presented one immediately after the other. Slow fluctuations of the frequency contour of loudness density would offer a satisfactory explanation of the known fact that vowel perception is quite accurate judging from differentiation data, while perception accuracy judging from recognition data is low.

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CHISTOVICH, L.A.

OPRS 57914

5 January 1973

STUDY OF PERIPHERAL AUDITORY ADAPTATION
IN A PSYCHOACOUSTICAL EXPERIMENT

ENC 6:2:55

[Article by L.A. Chistovich, director of the laboratory of speech physiology, V.A. Kshenik, director of the laboratory of speech biophysics, and L.V. Lesovoy, all of the Institute of Physiology imeni I. P. Pavlov of the USSR Academy of Sciences, Leningrad; Leningrad, Psichologicheskii Zhurnal SSSR, Russian, No 10, 1972, pp 1343-1347]

The methods of a psychoacoustical experiment that satisfies the requirements for measuring peripheral auditory adaptation are described. The relations of the test stimulus detection threshold to the duration of the masking sound are determined. The results show that distinction should be made between fast and slow components in the adaptation effect. The processes related to the fast component are established during the first 50-70 msec of stimulation; the slow component is clearly expressed only at high sound intensities. The data agree with the results of electrophysiological studies of peripheral auditory adaptation.

Peripheral auditory adaptation is manifested in a rapid decline of the pulse frequency in auditory nerve fibers during a signal of constant amplitude [14, 16] and in the inhibition of the reaction to the test stimulus, which is manifested soon after the completion of the influencing sound -- the masker (the amplitude of the first component of the auditory nerve response, fed from the round window) usually serves as the index of the reaction [5, 9-11, 15]. The degree to which inhibition is expressed increases with an increase in the duration of the masker [9] and decreases with an increase in the interval between the masker and the test stimulus [5, 10, 15].

URS 57914

5 Jan 73

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AUTHOR--(02)--CHISTOVICH, L.A., LEYMAN, I.I.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER OUTLINES THE THEORETICAL PRINCIPLES OF APPROACH USED IN INVESTIGATING THE PRECEPTION OF SPEECH SIGNALS (DEFINITION OF THE PROBLEM, A PRIORI PRESUMPTIONS, TERMINOLOGY). THE METHODS AND RESULTS OF THE EXPERIMENTAL INVESTIGATION ARE DESCRIBED.

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USSR

UDC: 621.396.677.012.12

CHISTYAKOV, A. B.

"On Formation of the Average Radiation Pattern of an Antenna in the Optical Wave Band"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference of Leningrad Electrical Engineering Institute of Communications, collection of works, No 3), Leningrad, 1971, pp 238-242 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3B9)

Translation: A study is made within the framework of the Kolmogorov turbulence model of the part played by the various components of the spatial spectrum of nonhomogeneities of the dielectric constant of the atmosphere in formation of the average radiation pattern with respect to power for a transmitting antenna in the optical band operating in the Fraunhofer zone. It is shown that the greatest contribution to formation of the average radiation pattern is made by nonhomogeneities whose dimensions are comparable with the antenna aperture. Two illustrations, bibliography of four titles. Resumé.

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TECHNICAL TRANSLATION

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29 April 72

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PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

RUSSIAN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYI ILLYUMINANTYEN

AUTHOR: I. A. DERUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
INVENT T.G. SCHIEVCHENKO

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TECHNICAL TRANSLATION

1969 / PSTC/JIT 23-2015-72

37 April 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1966

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AUTHOR: I. A. DERJUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SCHEVCHENKO

Translated for PSTC by ACSJ

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USSR

UDC 621.373.826:550.3

LOBKOV, M. M. and CHISTYAKOV, A. B.

"Experimental Investigation of the Effect of the Dimensions of the Transmitting Aperture and the Focusing of the Laser Beam on the Laws of Distribution of the Signal Level Fluctuations in a Turbulent Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 222-224 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D357)

Translation: Results are given of an investigation into the distribution density of laser beam fluctuations ($\lambda = 0.63 \mu$) for various beam focusings and aperture output dimensions. With an increase in the aperture, the law of fluctuation distribution approximates the symmetrical, where the maximum distribution density shifts toward the higher levels. Data is given of the effect of the aperture dimensions and the beam focusing on the statistical characteristic of the signal as a function of the dimensions of the receiving aperture and the wind velocity. A. L.

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71

USSR

UDC 534.2

GENKIN, M. D., TARKHANOV, G. V., CHISTYAKOV, A. G.

"Experimental Studies of Transverse and Torsional Oscillations of High Beams"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 35-40 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh478)

Translation: The results of an experimental study of the shapes and frequencies of the natural vibrations of two welded thin-walled beams of I-beam shape with a ratio of length to height of 5.8 and 3.4 are presented for the frequency range 0-1000 Hz. The calculations made considering the shift and inertia of rotation of the transverse cross sections are in good agreement with experiment for the first three forms of the oscillations. Authors abstract.

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USSR

UDC 533.652/.661.013

CHISTYAKOV, A. I.

"Dynamics of Automatic Damping Systems for Objects With a Pendulum Suspension"

Tr. Kazansk. aviats. in-ta (Works of Kazan' Aviation Institute), 1969,
No 99, pp 49-54 (from RZh-Mekhanika, No 5, May 70, Abstract No 5B344)

Translation: The problem of damping pendulum oscillations arises in lifting and towing loads on a long suspension by aircraft and other lifting means. Special automatic dampers are often applied for this purpose. The dynamics of an automatic damping system is investigated considering the elasticity of the suspension elements. The equations of motion of the object are given and the entire system is modeled. In the modeling the object was represented by an electronic model and the automatic damper by a real device. Different versions of the position of the elements of the automatic damper on the object were modeled. Oscillograms of the modeling results are given. Analysis of the results made it possible to draw several practical conclusions. E. G. Vol'pert.

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USSR

UDC 531.76/77

RYAPOLOV, V. A., KRYUKOV, L. V., KULIKOV, S. V., CHISTYAKOV, B. V.,
PERFIL'YEV, L. M., and OREL-KHOMYAKOV, G. A.

"A Device for Indicating the Direction of Rotation of a Stepping Motor"

USSR Author's Certificate No 363922 kl G 01 p 13/00, filed 17 Oct 70,
published 21 Mar 73 (from RZh Avtomatika Telemekhanika i Vychislitel'naya
Tekhnika, No 11, Nov 73, abstract No 11 A 387P)

Translation: A device is proposed for indicating the direction of rotation of a stepping motor, containing a differentiating element and valves. To simplify and improve the reliability of the apparatus, one of the valve inputs is connected to each phase winding of the step motor; the other input is connected through the differentiating element to the following phase winding of the stepping motor, while the outputs of the valves are combined and connected to the output terminal. One illustration.

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